

Delta Stewardship Council
Risk Reduction and Coequal Goals Workgroup

Response to questions posed by the Council by

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Question #4: What types of flood-related emergency planning activities should be conducted in the Delta and how should they be prioritized?

You must first distinguish between two distinct and separate components of a response to a flood. One component comprises the identification and response to threats to levee integrity. This is commonly called the “flood-fight operation”. This term is more specifically defined as all activities directly related to identifying threats to levee integrity that arise while the flood is passing through the system and responding to any such threats to prevent failure of a levee. It also includes all engineering actions taken to reduce the extent, depth, and/or duration of the flood if a primary levee does, unfortunately, fail. The other component of the response to a flood is comprised of those other public safety functions that most people equate with the term “emergency response”, public warning, evacuation, rescue, shelter, and recovery.

You must distinguish between these two components because each involves completely different agencies and players and each has completely different barriers and hurdles to overcome if you want to improve the quality and effectiveness of that component of the response. Another reason to treat flood fight operations separately is the fact that if we are as effective as possible in preventing levee failures in the first place, and also are as effective as possible in reducing the extent, depth, and duration of a flood in the event of a failure, then evacuation, rescue, shelter and recovery operations become much easier to perform and possibly even unnecessary. Effectiveness in preventing levee failure potentially prevents the tragedy while efficient evacuation, rescue, or shelter operations can only ameliorate the tragedy.

Obviously the first priority if you want to improve flood-related response is to improve our flood fight operations. The following recommended actions would be a significant start in improving the effectiveness of the flood fight. Other significant steps to improved preparedness can be provided in future submittals.

1. *Decentralize response to levee problems by empowering reclamation districts to deal directly with threats to levee integrity to prevent failure or reduce the extent, depth, and/or duration of flooding from a failure.*

Background to Recommendation

A large flood is a wide ranging, complex event with a multitude of threats to levee integrity arising simultaneously over a wide area. In such a complex situation no one agency can deal effectively, or in a timely manner, with all of the problems even if in possession of unlimited funding. The key to ensuring the most effective possible response to these incipient threats to levee stability is to decentralize response. You decentralize response by empowering lower levels of government, specifically the reclamation districts, to respond effectively to their local levee problems. This allows more centralized and bureaucratic (and therefore naturally slower) agencies, such as the Department of Water Resources, to concentrate their resources on larger problems or problems where time is not so critical.

Unfortunately, we currently have a system that is just the reverse. The agencies that are closest to an incipient problem and could most quickly respond, the reclamation districts, often do not have the financial resources to respond to problems requiring something more than sandbags. Their emergency funds tend to be small and quickly depleted.

On the other hand, the agencies that potentially have the necessary funds to respond to problems requiring more than sandbags are the most centralized and therefore potentially slowest to act if faced with a multitude of problems (as big floods tend to generate). The current situation is even worse since the response staff of those centralized agencies, the Department of Water Resources and the Army Corps of Engineers, do not have funds readily available for response but must go through a time consuming process of obtaining expenditure authority from the Department of Finance or Washington D.C.

The current system throws away a key advantage of having a multiplicity of reclamation districts in the Delta, the potential for decentralized and therefore more effective and rapid response. The districts are both able and motivated to respond quickly to threats to their limited stretch of levee. However, the districts have limited assessment ability and non-property owning beneficiaries of the Delta and its levees do not pay anything for levee maintenance or emergency response. Combined with the increasing cost of day-to-day levee maintenance, this situation ensures that most districts have limited ready funds to perform many of the engineering actions needed to stabilize a levee or contain floodwaters. In theory, districts could empower themselves by obtaining loans at the time of the flood that they would repay after the emergency. However, when the flood arrives is exactly the moment when banks will not provide such loans.

Implementing the Recommendation

Use bond funds to establish a \$50 million emergency fund per county. These funds would not, in general, be used to fund actual response but would serve as a loan guarantee so districts can obtain loans at the time of the flood and empower themselves to deal with threats to their levees. Currently, the districts are quickly forced to pursue assistance from higher levels of government which can lead to time consuming delays.

Under the control of county level officials, and rules established by the Department of Water Resources, this emergency fund could also be accessed directly to fund response to prevent levee failure where the potential of preventing millions of dollars in damages is clearly evident. After the flood, districts would receive federal and state disaster financial aid which they would use to repay the emergency loan. Any shortage could be made up from assessments on district property-owners and non-property owning beneficiaries of the Delta. In the rare case that a district defaulted on a loan then the emergency fund would be used to meet the loan, thereby maintaining the ability of other districts to obtain loans in future floods. The fund would then be restored through assessments on the defaulting district's property and other means.

2. *Complete Flood Contingency Maps for the Delta and require all levels of government to approve the maps and make pre-commitments for response.*

Background to Recommendation

San Joaquin County recognized many years ago that floods are not mysteries that can only be unraveled when the floodwaters arrive. Practical options for containing floods and reducing damages in the event of a levee breach can be identified prior to an actual flood. Information needed to evaluate and implement these options can be identified and collected before the flood. Yet, these activities had not been performed in any formal manner anywhere until San Joaquin County began doing it over ten years ago.

The San Joaquin County Office of Emergency Services has subsequently facilitated and funded the development of contingency plans by reclamation districts aimed at improving decision-making and speeding response to threats to levees. These contingency plans have taken the form of "flood contingency maps" covering areas with a common hydrological threat. The mapping format displays this critical information in relation to the most important component of floods, geography. The maps display historical, critical topographical, and survey information that are needed for effective situation analysis along with pre-planned options for responding to predictable failure scenarios. They also display patrol and logistical procedures that speed response to threats to levee stability. It should be noted that San Joaquin County has accomplished this planning work with only local county

funds and a small ongoing federal grant. The State of California has never provided financial assistance for this effort.

Since practical options for containing a flood in the event of a breach can be foreseen, the next logical step (if logic governed anything) would be to establish agency pre-assignments for implementing those actions if that failure scenario develops. Such pre-assignments, combined with the mapping process, would ensure that response to predictable levee problems and failure scenarios is automatic and pre-planned and requires a minimum of coordination at the time of the emergency. Such automatic response could replace the current drawn out process of arguing about what needs to be done, and who will do what, at the worse possible time -- during the flood.

Unfortunately, State and Federal agencies have not shown an inclination to make such beneficial pre-commitments. State and Federal agencies have not even agreed to review, comment upon, and formally approve maps completed by San Joaquin County, its reclamation districts, and the district engineers. More commitment is needed to go with the logical reality (there's that logic again) that all levels of government will be inclined to commit resources to protect American citizens once an emergency develops.

Yet agencies still fear that making financial commitments before the flood will somehow "tie" them to spending money when the flood arrives. This posturing goes on even though we know in our hearts that we all will start spending lots of money when the political imperative to act arrives with the flood. The real question is how efficiently and effectively will we spend money when the flood arrives, by carrying out well thought out pre-commitments or in a knee-jerk fashion.

Ceasing to pretend that somehow your level of government will be exempt from committing resources to the flood fight will allow realistic pre-planning and pre-commitments to be made. This will subsequently ensure that everyone is operating much more effectively when a flood event endangers the lives and property of American citizens.

Implementing the Recommendation

Encourage and fund the development of flood contingency maps for the Delta. Encourage and require all levels of government to participate in their development and approval of maps. Require agencies at all levels of government to establish pre-assignments to response to predictable flooding scenarios that shares the response burden fairly and brings tremendous added efficiency and effectiveness to flood emergency response. Better flood fight response will save millions of dollars in damages in future floods. Allocate \$2 million in bond funds to complete contingency maps and preliminary engineering designs for identified response options to threats to levee failure or levee failure.

Question #6: What agency coordination would best achieve effective emergency planning and implementation?

In response to this question, which is confusing, I would offer the following recommendations.

1. *Create Unified Flood Fight Commands within the Delta and require local and State agencies to provide representatives with the authority to make and immediately implement joint decisions within reasonable guidelines from their agencies.*

Background to Recommendation

It was mentioned above that the best response is a decentralized response. Officials near the incipient problem must be empowered to make response decisions and have the resources to implement them. In many cases this will involve a joint decision by more than one local, state, or federal agency. This decision-making must not be hindered by lack of resources to respond as discussed above. It should not be hindered by the inability of agencies to coordinate. It should not be hindered by the inability of agency representatives at the scene of a problem to commit their agency without time delaying and inefficient reference to higher authorities far from the scene.

Implementing the Recommendation

Reclamation districts should be grouped into unified flood fight commands based on the hydrology of the watershed and the inter-dependency of districts in dealing with common problems. Command posts for these unified flood fight commands should be close enough to potential threats to levee integrity to ensure the availability of timely and high quality information for decision-making. Supporting city, county, state, and federal agencies must be required through legislation or written agreement to provide representatives to participate in these flood fight commands with adequate authority to act on behalf of their agencies without burdensome recourse to higher levels of their organization.

An agency with incident command experience should be assigned to facilitate the operations of each unified command. Emergency funds and delegated spending authority will be established by all levels of government prior to the flood to ensure that these unified flood fight commands can act promptly. Provide \$2 million in bond funds to provide proper communications to allow reclamation districts to interact effectively with the unified commands.

1. *Establish a Delta Multi-Agency Coordination System at the regional level.*

Background to the Recommendation

While command, decision making, and immediate response to threats to levee integrity must be decentralized, the management of resources and information to ensure the best possible overall response in the Delta needs to occur at the regional level. The Multi-Agency Coordination System (MACS) is an established structure and process for managing resources, sharing information, and prioritizing problems among multiple different jurisdictions. Establishing a Delta MACS would enhance overall response to Delta floods.

However, establishing the structure is one thing. Ensuring that agencies, particularly centralized bureaucracies such as State and federal agencies, do not reduce the effectiveness of multi-agency coordination by continuing to act alone to control their resources at the local level is another. Local, State, and federal agencies must commit to this coordination process through binding agreements.

Implementing the Recommendation

Through the SB27 process, establish agreed upon procedures and structures for operating a Delta Multi-Agency Coordination System (MACS) within the Delta during flood operations. Provide \$2 millions dollars in bond funds to allow the State and Delta counties to establish the communications, command, and other systems and equipment needed to operate this coordination body.

Question #7: Are additional local/regional land use regulations needed to provide adequate levels of protection to people, structures, and ecosystems?

1. *Establish regulations for community development that will limit damages from a flood even in the situation where the protective levee is certified by FEMA as providing protection from the 100-year flood.*

Background to Recommendation

Unfortunately, the federal flood insurance and levee certification program has created something of a “Maginot Line” mentality in communities. The fact that their levee is certified by FEMA, thereby removing most insurance and land use requirements and restrictions, leads communities to neglect the possibility that the levee can still fail. Community design subsequently does not take possible flooding into account. The communities are often not designed to facilitate possible future necessary emergency actions on their protective levee. Critical infrastructure is not provided with additional protection to prevent catastrophic failure of key community services, such as waste disposal, in the event a levee fails. Communities are designed, in fact, once their levee is certified by FEMA as if they are situated on

top of a mountain.

Implementing the Recommendation

If there is a breach in a levee protecting a community along a river with a gradient there will be a need to create a “relief cut” at the lower end of the protected area. This relief cut allows impounded waters to return to the river thereby reducing flood depth and extent. However, structures in the immediate vicinity of the relief cut will incur substantially more damage due to the increased flow of water. It is possible to identify exactly where a relief cut will be needed. Communities should ensure that parks or other open space are located behind this location thereby reducing damage if there is a flood.

Agencies will need to flood fight levees in the event of a major flood. Easements behind levees are often inadequate to provide enough space to do this effectively. In some cases, structures and homes virtually abutting the levee making it necessary to destroy structures just to get to the levee back slope. A setback of 150' from the levee back slope should be established statewide to allow effective response to threats to levee stability.